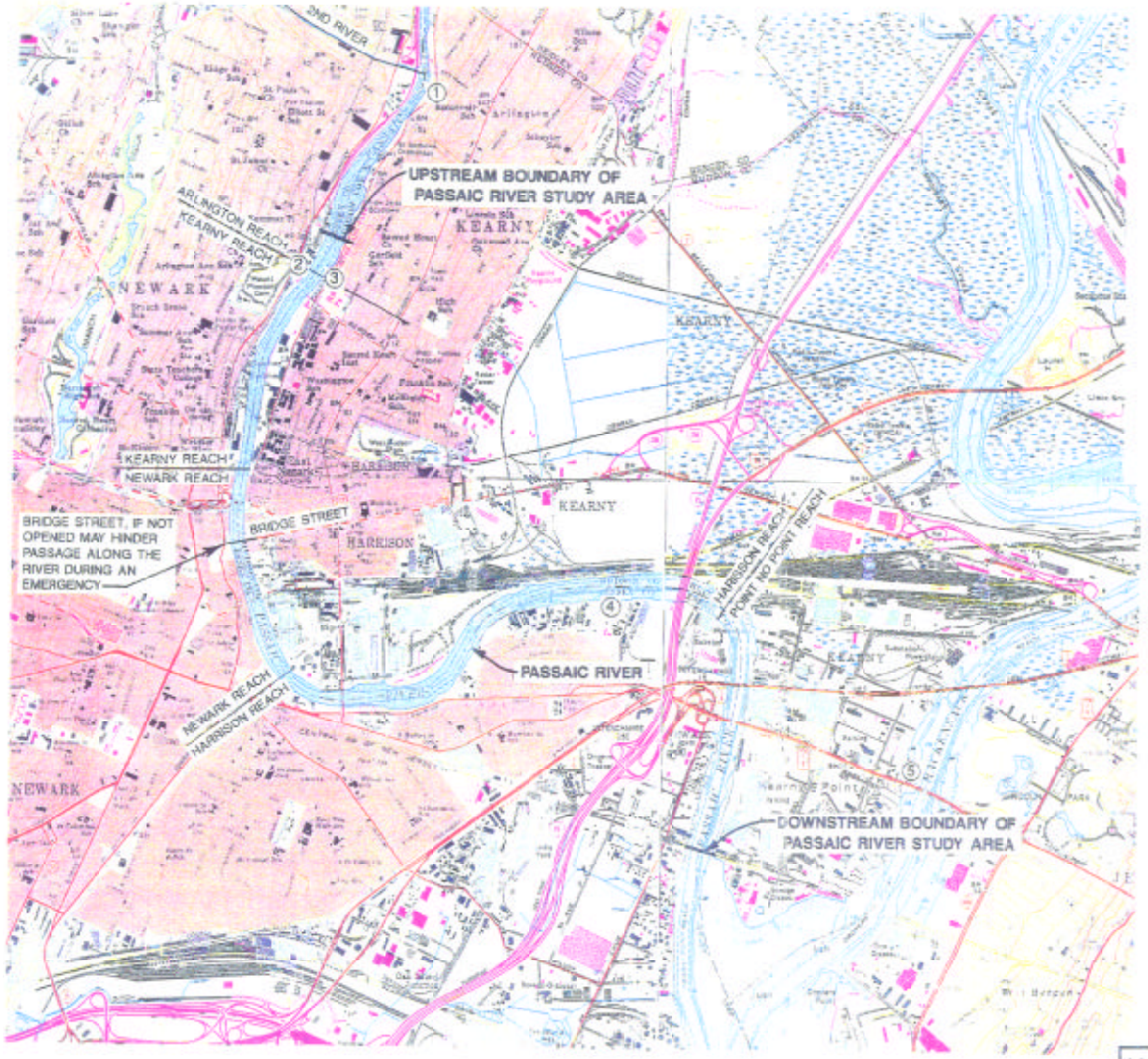


N

0 1500 3000 6000
SCALE IN FEET

LEGEND

ARLINGTON/KEARNY REACH

① MARINA, ON RIGHT BANK, DOWNSTREAM FROM 2ND RIVER, ON RIVER ROAD.

② MARINA, ON LEFT BANK, ADJACENT TO MOUNT PLEASANT CEMETARY.

③ DOCK, ON RIGHT BANK, NEAR SOUTHERN END OF RIVER BANK PARK, ACROSS FROM MOUNT PLEASANT CEMETARY.

HARRISON REACH

④ MARINA, ON LEFT BANK, DOWNSTREAM FROM 80/120 LISTER AVENUE PROPERTY.

HACKENSACK RIVER

⑤ MARINA, ON LEFT BANK, UPSTREAM FROM ROUTE 1 AND 9 BRIDGE.

NOTE:

RIGHT AND LEFT BANK ARE DELINEATED WHEN LOOKING UPSTREAM.

| | |
|---|---|
| Job No. : | 23508 |
| Prepared by : | K.A.P. |
| Date : | 8/4/94 |

**PASSAIC RIVER SITE MAP AND EMERGENCY EVACUATION ROUTES**

FIG. 4-1

# 5.0
# WORK ACTIVITIES

The principal features of the field sampling have been described in the IWP. Briefly the features include the following:

## TASK 1 - CORE BORINGS

## TASK 1A - CORE SAMPLE COLLECTION:

Core samples will be collected at eighty to ninety locations from a vibracoring vessel (anticipated to be approximately 30 feet) along 6 miles of the Passaic River during daylight hours. Core samples will be collected in aluminum core barrels or lined core tubes using a vibracorer that will be lowered into the water and slowly allowed to penetrate the sediments. The cores will be collected in water up to about 35 feet deep and are anticipated to be a maximum of 30 feet in length.

The vibracorer unit and core barrel will be washed off with river water for storage on the deck prior to moving to the next sample location. The core nose will be sealed by placing a plastic cap over the open end as soon as is practical. The core will be unbolted from the vibracoring unit and taken to the core extraction area located on the deck of the boat. The core liner will be extracted from the core barrel and cut into several sections. These sections will then be capped and stored upright until transferred to the support launch.

## TASK 1B - SUPPORT LAUNCH

A support launch or vessel will be available and will transport the core tubes to the processing facility on shore. The tubes will be maintained in an upright position wrapped in a cooling device. The support vessel in addition to transporting core tubes onshore will traverse the river to collect readings from measurement gauges placed at strategic locations along the river.

## TASK 1C - CORE PROCESSING

The core processing facility will be located indoors (i.e., trailer) on the 80/120 Lister Avenue properties, Newark, New Jersey. The core will be cut open in lengthwise and or in vertical sections using a small circular saw according to SOP No. 8 (Core Sample Processing). The core sample will be undrained and moist when opened. All samples will be handled wet to minimize exposure to particulates. In the past, some cores have had a strong odors and volatile organic compounds have been detected using an organic vapor analyzer (OVA).

Sediment cores in aluminum core tubes for geotechnical analysis will be cut in vertical sections using a small circular saw, sealed with caps, and sent to the laboratory for analysis. Samples for chemical characterization from the transported core section will be taken out and homogenized by placing a portion of a core sample in a large bowl and mixing it with a spatula. The homogenized sample will then be placed into laboratory sample containers for off-site laboratory analysis or archiving. Unsampled sediment core material will either be placed in sample containers for archiving, placed in drums for disposal, or core tubes or liners containing the unsampled sediment will be capped and taped for archiving.

## TASK 1D - CORE SAMPLE STORAGE

Core samples that will be separated out for archiving purposes and waste sediment drummed for disposal will be transported to a secured storage facility.

## TASK 1E - GEOTECHNICAL SAMPLING

The geotechnical laboratory will be located in a trailer within the exclusion zone on the 80/120 Lister Avenue properties. Geotechnical tests to be conducted may include: Atterberg limits, bulk density, dry density, compressibility, erosion rate, and particle size distribution. All samples will be analyzed in accordance with the methodology specified in Section 3.1.5.2 of the FSP.

It is anticipated that the particle size distribution analysis will generate a significant amount of airborne dust. Exposure to the dust will be controlled with engineering and with respiratory protection. Dust generation is not expected to be a concern for the other five tests.

## TASK 2 - BATHYMETRY

The bathymetric survey will be conducted on a vessel anticipated to be about 16 feet in length. The vessel will be equipped with electronic instruments (i.e., fathometer) that will record depth readings. The boat will traverse back and forth across the river along transects anticipated to be spaced 100 feet apart along the 6 mile stretch of river. A navigation system, Laser or Microwave (Electronic Distance Measurement [EDM]), will be set up on shore. The survey is anticipated to be conducted during higher portions of the tidal cycle so measurements can be taken over the shallow areas of the river, as well as deeper sections.

## TASK 3 - ACOUSTIC DOPPLER, SUSPENDED AND BED LOAD SAMPLING

## TASK 3A - ACOUSTIC DOPPLER

An acoustic doppler, an electronic instrument that measures velocities, will be mounted and operated from a boat. The boat is anticipated to be approximately 20-30 feet in length. Work will be conducted along traverses across the river including areas close to shore.

## TASK 3B - COLLECTION OF SUSPENDED SEDIMENT

Suspended sediment samples will be collected just above the streambed using a weighted-bottle type sampler for sample collection. The sampler will be submerged into the stream by hand or cable line over the side of the boat. The sample collected will be both water and sediment. The bottle will be capped as soon as practical and will be submitted to the laboratory for Total Suspended Solids (TSS) analysis.

## TASK 3C - COLLECTION OF BED LOAD SAMPLES

Bedload sediment samples will be collected by lowering a sampler to the top of the streambed and collecting sediment into a fine mesh bag. The bag will be raised out of the water and the sediment transferred into a prepared container. The container will be capped as soon as practical and the sample submitted to the laboratory for weighing and/or grain size analysis. The fine mesh bag used for bedload sample collection will be rinsed and sprayed to remove fines from the bag prior to collecting another sample.

## TASK 4.0 CONE PENETROMETER TESTING/ELECTRIC VANE TESTING

Cone penetrometer testing will be performed from a boat by pushing a cone penetrometer through the sediment. This will be conducted by using a small pushing frame attached to the boat. An electric winch will be used to advance the cone. The cone will be advanced to an appropriate depth and then removed. Decontamination will not be performed between test locations, however, the cone and rods will be wiped to remove material which may attach itself to the cone. The electric vane will be pushed using the same frame and reaction load used for cone penetrometer testing. Periodically the rods used to push the vane will be rotated.

# 6.0
# HAZARD ASSESSMENT

## 6.1 GENERAL HAZARD ASSESSMENT

### 6.1.1 Chemical Hazards

#### 6.1.1.1 Chemicals of Concern

A variety of industrial sources are believed to have contributed to contamination of the sediment in the Passaic River. Previous sampling results were discussed in Section 4. Sampling results indicate that there are chemicals present at various depths and locations within the Site.

The chemicals of concern (COCs) with respect to personnel safety at the Site include polychlorinated dibenzodioxins, polychlorinated dibenzofurans (PCDDs/PCDFs), polychlorinated biphenyls (PCBs), aromatic hydrocarbons, phenols, pesticides, chlorinated organic compounds, polynuclear aromatic hydrocarbons (PAHs), phthalates, and metals. Some of the COCs are known or suspected human carcinogens. Table 4-1 presents the COCs based on review of historical analytical data to which individuals could be exposed during Site activities. Table 6-1 lists the PEL-TWA (Permissible Exposure Limit - Time Weighted Average) and the TLV-TWA (Threshold Limit Value -Time Weighted Average) for most of the compounds in Table 4-1. These limits are defined as the concentration of a chemical in air to which nearly all workers can be repeatedly exposed, day after day, for a normal 8-hour workday and a 40-hour workweek, without adverse effect. Exposure limits have not been established for all the compounds listed in Table 6-1. If presented, the exposure limits were obtained from the 1994 "Guide to Occupational Exposure Values" compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).

Acute or chronic symptoms of exposure to the COCs are not included in Table 6-1 due to the number of COCs listed. However, common symptoms of exposure to COCs are eye, nose and throat irritation, headache, nausea, dizziness, blurred vision, cramps, and skin rashes. Whenever any of these symptoms are experienced, field work should stop immediately and affected personnel should seek medical attention. Work will begin only after the SSO/HSO evaluate the situation and give approval for commencing work. Further information providing toxicologic data for COCs can be obtained by contacting the HSO. Common routes of entry are inhalation, ingestion and dermal contact.

#### 6.1.1.2 Exposure Routes

The primary exposure pathways of concern for these constituents are inhalation and skin absorption.

Inhalation of Contaminated Dust

PCDDs/PCDFs, pesticides, hexachlorobenzene, metals, and PCBs are solids at normal outside temperatures and become airborne in the breathing zone only as a result of dust-generating activities. Dust suppression techniques (i.e., water misting, ventilation, mopping sediments off the boat) shall be used to reduce airborne exposures.

Inhalation of Volatile Contaminants

Aromatic hydrocarbons, phenols, and chlorinated organic compounds, may volatilize from the sampling media. There is a possibility that personnel may be exposed to volatile organic contaminants (VOCs) during activities which require contact with the river sediments. Volatilization is expected to increase with increasing ambient temperatures. Disturbance of the sediments such as will be required during sample processing will also result in increased air concentrations.

Ingestion

Personnel may be exposed to accidental ingestion of contaminants by hand to mouth contact after contact with contaminated materials. Ingestion of constituents of concern will be controlled on the Site by specific work practices and decontamination procedures.

Skin and Eye Contact

Skin and eye contact with some of the constituents at the site may cause skin or mucous membrane irritation. Many of those constituents can be absorbed into the bloodstream through the skin or eyes.

### 6.1.2 Physical Hazards

Vibracore Sampling Hazards

The hazards involved with the use of vibracores include the hazards of pinch points, overhead hazards, impact from moving parts, and improper operations.

Working on the River

Most of this project will be conducted from a boat on the Passaic River. The potential exists for personnel to trip or slip and either injure themselves or fall off the boat.

Noise Exposure

Work at this site will be conducted around equipment which has the potential to generate high noise levels. Regulations require that hearing protection be used when noise levels exceed 90 dBA averaged over an 8-hour day. Hearing protection is required at this site for exposures of

greater than 85 dBA for any length of time. In the absence of instrumentation, an appropriate rule of thumb is that when normal conversation is difficult at a distance of two to three feet, hearing protection is required. Field personnel shall have hearing protection on Site at all times.

Tripping Hazard

Personnel will be required to conduct some of their activities on the 80/120 Lister Avenue properties. Care should be taken to avoid contact with the soil underlying the geotextile fabric and to preclude the raising of dust. The presence of considerable surface debris, uneven surfaces, piles of soil and debris below the fabric, and the rapid aging of the on-site structures, all contribute to tripping hazards. Extreme care should be taken whenever walking on-site, especially whenever equipment must be carried.

Use of PPE

The Personal Protective Equipment (PPE) which may be required for some activities places a physical strain on the wearer. When PPE such as respirators, gloves, and protective clothing are worn, visibility, hearing, and manual dexterity are impaired.

Heat Stress

Work which is conducted when temperatures exceed 70E F may result in increased incidence of heat related illness. The risk is increased for personnel who are required to don impermeable protective clothing during warm weather.

The Heat Stress Casualty Prevention Plan presented in Attachment B will be implemented to deal with this health hazard during warm weather. The plan describes heat stress identification, treatment, prevention, and monitoring. Fluids will be provided at regular intervals during the work periods in order to maintain adequate body fluid levels for the field personnel.

Cold Stress

Attachment C presents the Cold Exposure Casualty Prevention Plan.

Electrical Hazards

There is a potential for exposure to electrical hazards anytime electrical equipment is used. The hazard is increased when electrical equipment is used during work conducted over the water.

### 6.1.3 Biological Hazards

Insects

During field work at the Site, personnel may encounter a wide variety of insects including bees, mosquitos, ticks and spiders. Bee and wasp stings may cause serious allergic reactions in certain individuals. The SSO should identify all personnel with known insect allergies or sensitivities before field work begins.

Spider bites can be extremely serious, others are unpleasant or uncomfortable, resulting in rashes, itching, and possible infection. The possibility of allergies greatly increases the danger since people are not usually aware of such allergies until they have been bitten. Therefore, spiders should be regarded as potentially dangerous.

Ticks are parasites that feed on the blood of an animal/host and can carry several diseases, the least bringing several days of fever and pain and the worst causing brain damage. Field personnel should become familiar with identification of ticks and refer to Attachment J for information on prevention, symptoms, and treatment of tick borne diseases.

Local Fauna

Poison Ivy may be encountered during Site studies to which some individuals are more sensitive than others. Field personnel should become familiar with the identification of these fauna and avoid contact.

## 6.2 TASK-BY-TASK HAZARD ANALYSIS

The tasks to be completed for the current phase of work are listed in Section 5.0.

A task-by-task hazard analysis is presented in the following sections. The anticipated risk is determined without regard for the reduction of risk which will be obtained through the use the required administrative and engineering controls or PPE. Sections 7 and 8 of this document present the health and safety requirements for Site activities and are intended to reduce the potential hazards discussed in this section.

### 6.2.1 Task 1A - Core Sample Collection

The following hazards outlined in section 6.1 will be a concern during this task:

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | low |
| Inhalation of volatile contaminants | moderate |
| Ingestion of contaminants | low |
| Skin/eye contact with contaminated materials | moderate |
| Vibracore Hazards | high |
| Working on the River | high |
| Noise Exposure | moderate |

| | |
|---|---|
| Tripping hazards | moderate |
| Use of PPE | moderate |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | moderate |
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

### 6.2.2 Task 1B - Support Launch

The following hazards outlined in section 6.1 will be a concern during this task:

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | low |
| Inhalation of volatile contaminants | low |
| Ingestion of contaminants | low |
| Skin/eye contact with contaminated materials | moderate |
| Vibracore Hazards | not anticipated |
| Working on the River | high |
| Noise Exposure | moderate |
| Tripping hazards | moderate |
| Use of PPE | low |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | not anticipated |

| | |
|---|---|
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

### 6.2.3 Task 1C - Core Processing

The following hazards outlined in section 6.1 will be a concern during this task:

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | moderate |
| Inhalation of volatile contaminants | high |
| Ingestion of contaminants | low |
| Skin/eye contact with contaminated materials | high |
| Vibracore Hazards | not anticipated |
| Working on the River | not anticipated |
| Noise Exposure | low |
| Tripping hazards | moderate |
| Use of PPE | moderate |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | low |
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

### 6.2.4 Task 1D - Core Sample Storage

The following hazards outlined in section 6.1 will be a concern during this task:

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | low |
| Inhalation of volatile contaminants | moderate |
| Ingestion of contaminants | low |
| Skin/eye contact with contaminated materials | low |
| Vibracore Hazards | not anticipated |
| Working on the River | not anticipated |
| Noise Exposure | not anticipated |
| Tripping hazards | moderate |
| Use of PPE | not anticipated |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | not anticipated |
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

### 6.2.5 Task 1E - Geotechnical Sampling

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | high |
| Inhalation of volatile contaminants | high |
| Ingestion of contaminants | low |
| Skin/eye contact with contaminated materials | high |
| Vibracore Hazards | not anticipated |
| Working on the River | not anticipated |
| Noise Exposure | moderate to high |
| Tripping hazards | low |
| Use of PPE | moderate |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | low |
| Insects | not anticipated |
| Other Animals | not anticipated |
| Local Fauna | not anticipated |

### 6.2.6 Task 2 - Bathymetry

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | not anticipated |
| Inhalation of volatile contaminants | not anticipated |
| Ingestion of contaminants | not anticipated |
| Skin/eye contact with contaminated materials | not anticipated |
| Vibracore Hazards | not anticipated |

| | |
|---|---|
| | high |
| Working on the River | |
| Noise Exposure | moderate |
| Tripping hazards | moderate |
| Use of PPE | not anticipated |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | not anticipated |
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

### 6.2.7 Task 3A - Acoustic Doppler

The following hazards outlined in section 6.1 will be a concern during this task:

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | not anticipated |
| Inhalation of volatile contaminants | not anticipated |
| Ingestion of contaminants | not anticipated |
| Skin/eye contact with contaminated materials | not anticipated |
| Vibracore Hazards | not anticipated |
| Working on the River | high |
| Noise Exposure | low |
| Tripping hazards | moderate |
| Use of PPE | not anticipated |
| Heat Stress | depends on ambient temperature |

| | |
|---|---|
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | not anticipated |
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

### 6.2.8 Task 3B - Collection of Suspended Sediment

The following hazards outlined in section 6.1 will be a concern during this task:

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | low |
| Inhalation of volatile contaminants | moderate |
| Ingestion of contaminants | low |
| Skin/eye contact with contaminated materials | moderate |
| Vibracore Hazards | not anticipated |
| Working on the River | high |
| Noise Exposure | low |
| Tripping hazards | moderate |
| Use of PPE | moderate |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | not anticipated |
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

### 6.2.9 Task 3C - Collection of Bed Load Samples

The following hazards outlined in section 6.1 will be a concern during this task:

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | moderate |
| Inhalation of volatile contaminants | moderate |
| Ingestion of contaminants | low |
| Skin/eye contact with contaminated materials | moderate |
| Vibracore Hazards | not anticipated |
| Working on the River | high |
| Noise Exposure | low |
| Tripping hazards | moderate |
| Use of PPE | moderate |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | not anticipated |
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

### 6.2.10 Task 4.0 Cone Penetrometer Testing/Electric Vane Testing

The following hazards outlined in section 6.1 will be a concern during this task:

| Potential Hazard | Anticipated Risk |
|---|---|
| Inhalation of contaminated dusts | low |
| Inhalation of volatile contaminants | low |
| Ingestion of contaminants | low |
| Skin/eye contact with contaminated materials | low |
| Vibracore Hazards | high |
| Working on the River | high |
| Noise Exposure | moderate |
| Tripping hazards | moderate |
| Use of PPE | low |
| Heat Stress | depends on ambient temperature |
| Cold Stress | depends on ambient temperature |
| Electrical Hazards | not anticipated |
| Insects | low |
| Other Animals | low |
| Local Fauna | low |

# TABLE 6-1

## PHYSICOCHEMICAL CHARACTERISTICS OF CHEMICALS OF CONCERN

| | CAS # | OSHA PEL | ACGIH TLV/ Recommended Exposure Limits | IDLH | Vapor Pressure | Specific Gravity | Skin Hazard | Odor Threshold | Carcinogen Category | OVA % (Methane) Response | MW |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | mm @ 68 F | @ 68 F | | | | | grams |
| Acetone | 67-64-1 | 750 ppm<br>1000 ppm S | 750 ppm<br>1000 ppm S | 2000 ppm | 180 | 0.79 | NO | mint like 47.5 - 1613.9 mg/m³ | IRIS D | 60 | 58.1 |
| Aldrin | 309-00-2 | 0.25 mg/m³ | 0.25 mg/m³ | 100 mg/m³ | 0.00008 | 1.6 | YES | odorless | IRIS B2 | NA | 364.9 |
| Alpha-BHC (alpha-hexachlorocyclohexane) | 319-84-6 | NE | NE | NE | 0.02 | 1.87 | YES | 0.088 ppm (in water) | IRIS B2 | NE | 290.83 |
| Ancenapthalene | 83-32-9 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 2.5 | | | | | NA | 154.21 |
| Anthracene | 120-12-7 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 0.23 | 1.283 @25C | YES | Weak aromatic odor | IRIS A1 | NA | 178.23 |
| Antimony | 7440-36-0 | 0.5 mg/m³ | 0.5 mg/m³ | 80 mg/m³ | 0.04 | 6.69 | NO | | NE | NA | 121.75 |
| Aroclor 1248 (Polychlorinated Biphenyl, 48% chlorine) | 12672-29-6 | NE | NE | NE | 0.0004 | 1.4 @ 15.5C | YES | ~odorless | IRIS B2 | NA | 299.5 |
| Aroclor 1254 (Polychlorinted Biphenyl, 54% chlorine) | 11097-69-1 | 0.5 mg/m³ | 0.5 mg/m³ | 5 mg/m³ | 0.00006 | 1.38 @ 77F | YES | ~odorless | IRIS B2 | NA | 328.4 |
| Arsenic (Inorganic)(Metal) | 7440-38-2 | 0.01 mg/m³ (a)<br>0.2 mg/m³ | 0.2 mg/m³ | 100 mg/m³ | 0.097 | 5.73 | NO | ~odorless | IRIS A | NA | 74.9 |
| Barium | 7440-39-3 | 0.5 mg/m³ | 0.5 mg/m³ | 1100 mg/m³ | 0.35 | 3.51 | NO | ~odorless | NE | NA | 137.33 |
| Benzene | 71-43-2 | 1 ppm<br>5 ppm S | 0.1 ppm (a)<br>10 ppm | 3000 ppm | 75 | 0.88 | YES | aromatic 5 - 119 ppm | IRIS A | 150 | 78.11 |
| Benzo(a)anthracene | 56-55-3 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 5.00E-09 | | | | | NA | 228.3 |
| Benzo(a)pryene | 50-32-8 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 5.00E-09 | 1.351 | YES | faint aroma | IRIS B2 | NA | 252.3 |
| Benzo(b)fluoranthene | 205-99-2 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | ~0 | | YES | | IRIS B2 | NA | 252.3 |
| Benzo(g,h,i)perylene, methyl | 191-24-2 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 1.00E-10 | | | | IRIS D | NA | 276.34 |
| Benzo(k)fluoranthene | 207-08-9 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 9.60E-11 | | YES | | IRIS B2 | NA | 252.32 |
| Beryllium | 7440-41-7 | 0.002 mg/m³<br>0.005 mg/m³ C | 0.002 mg/m³ | 10 mg/m³ | ~0 | 1.85 | NO | | IRIS B2 | NA | 9.01 |
| Beta-BHC (trans-alpha-benzene hexachloride) | 319-85-7 | NE | NE | NE | 0.005 | 1.89 @ 19 C | YES | | IRIS C | NE | 290.83 |
| BHC, gamma- | 319-86-8 | NE | NE | | 0.02 | | | | | | 290.83 |
| bis(2-ethyl hexyl) Phthalate | 117-81-7 | 5 mg/m³<br>10 mg/m³ S | 5 mg/m³<br>10 mg/m³ S | NE | 0.2 | 0.99 | NO | | IARC 2B | NA | 390.57 |
| Butanone 2- (Methyl Ethyl Ketone) | 78-93-3 | 200 ppm<br>300 ppm S | 200 ppm<br>300 ppm S | 3000 ppm | 71 | 0.81 | NO | mint or acetone like 10 - 20 ppm | IRIS D | 80 | 72.1 |
| Butyl Benzopthalate | 85-68-7 | NE | NE | | 0.0000086 | | | | | | 312.4 |
| Butyl Pthalate di-n- | 84-74-2 | 5 mg/m³ | 5 mg/m³ | 9300 mg/m³ | 0.03 | 1.05 | NO | | | NA | 278.35 |
| Cadmium (dust) | 7440-43-9 | .005 mg/m³ | 0.01 mg/m³ T(a)<br>0.002 mg/m³ R(a)<br>0.05 mg/m³ | 50 mg/m³ | 0.09 | 8.65 @ 77 F | NO | ~odorless | IRIS B1 | NA | 112.4 |
| Carbon Disulfide | 75-15-0 | 4 ppm<br>12 ppm S | 10 ppm | 500 ppm | 297 | 1.26 | YES | ether-like odor | NE | NE | 76.1 |
| Chlorobenzene (Monochlorobenzene) | 108-90-7 | 75 ppm | 10 ppm (a)<br>75 ppm | 2400 ppm | 11 | 1.11 | NO | almond-like 1 mg/m³<br>280 mg/m³ | IRIS D | 200 | 112.56 |

# TABLE 6-1

## PHYSICOCHEMICAL CHARACTERISTICS OF CHEMICALS OF CONCERN

| | CAS # | OSHA PEL | ACGIH TLV/ Recommended Exposure Limits | IDLH | Vapor Pressure mm @ 68 F | Specific Gravity @ 68 F | Skin Hazard | Odor Threshold | Carcinogen Category | OVA % (Methane) Response | MW grams |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chlorophenol 2- | 95-57-8 | NE | NE | NE | 2.2 | 1.26 | YES | Unpleasant, penetrating 0.00018 mg/l | IARC 2B | NE | 128.56 |
| Chromium (metal) | 7440-47-3 | 1 mg/m³ | 0.5 mg/m³ | NE | 0.02 | 7.14 | NO | ¯odorless | NE | NA | 520 |
| Chromium III | 16065-83-1 | 0.5 mg/m³ | 0.5 mg/m³ | NE | 0.02 | varies | YES | ¯odorless | NA | NA | 520 |
| Chromium VI | 7440-47-3 | 0.1 mg/m³ C (for chromic acids and chromates) | 0.05 mg/m³ | NE | 0.02 | | NO | ¯odorless | IRIS A | NA | 520 |
| Chrysene (1,2-Benzphenanthrene) | 218-01-9 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 0.000000006 | 1.274 | YES | | IRIS B2 | NA | 228.29 |
| Coal Tar Pitch Volatiles | 65996-93-2 | 0.2 mg/m³ | | 700 mg/m³ | varies | varies | YES | | IARC I | NA | |
| Cyanide, potassium salt | 151-50-8 | 5 mg/m³ | 5 mg/m³ | 50 mg/m³ | ¯0 | 1.55 | YES | faint, bitter, almond | NE | NA | 65.12 |
| Cyanide, sodium salt | 14-33-9 | 5 mg/m³ | 5 mg/m³ | 50 mg/m³ | ¯0 | 1.6 | YES | faint, bitter, almond | NE | NA | 49 |
| DDE (p,p' Dichlorophenyldichloroethylene) | 72-55-9 | NE | 0.00029 (D) | NE | 0.0000065 | | | | IRIS B2 | NA | 318.03 |
| DDT (Dichlorodiphenyltrichloroethane) | 50-29-3 | 1 mg/m³ | 1 mg/m³ | NE | 0.00000015 | 0.99 | YES | fruit-like, aromatic 0.35 ppm in water | IRIS B2 | NA | 354.49 |
| Dibenzofuran | 132-64-9 | NE | NE | | | | | | | | 168.2 |
| Dichlorobenzene 1,2- (o - Dichlorobenzene) | 95-50-1 | 50 ppm C | 25 ppm 50 ppm C | 1000 ppm | 1 | 1.3 | YES | Aromatic 50 ppm | IRIS D | 50 | 147 |
| Dichlorobenzene 1,3- (m-Dichlorobenzene) | 541-73-1 | NE | NE | NE | 2 | 1.2884 | YES | | IRIS D | NE | 147 |
| Dichlorobenzene 1,4- (p-Dichlorobenzene) | 106-46-7 | 75 ppm 110 ppm S | 75 ppm 110 ppm S | 1000 ppm | 0.18 | 1.25 | NO | Mothball-like Aromatic (stong at 30-60 ppm) | IARC 2B | 113 | 147 |
| Dichlorophenol 2,4- | 120-83-2 | NE | NE | | 0.53 | | | | | | 163 |
| Dieldrin | 60-57-1 | 0.25 mg/m³ | 0.25 mg/m³ | 450 mg/m³ | 0.00000016 | 1.75 | YES | odorless to mild, chemical 0.041 ppm | IRIS B2 | NA | 380.93 |
| Endrin | 72-20-8 | 0.1 mg/m³ | 0.1 mg/m³ | 2000 mg/m³ | 0.00000017 | 1.7 | YES | odorless to faint chemical 0.018 ppm | IRIS D | NA | 380.93 |
| Ethyl Benzene | 100-41-4 | 100 ppm 125 ppm S | 100 ppm 125 ppm S | 2000 ppm | 8.6 | 0.87 | NO | aromatic | IRIS D | 100 | 106.2 |
| Fluoranthene (1,2-Benzacenaphthene) | 206-44-0 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 0.01 | 1.25 @ 0C | YES | | IRIS D | NE | 202.26 |
| Fluorene (2,3-Benzindene) | 867-37-1 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | 1.7 | 1.203 @ 0C | Yes | | IARC 3 | NE | 166.22 |
| Hexachlorobenzene | 118-74-1 | NE | 0.025 mg/m³ (a) | NE | 0.28 | 1.569 @ 23.6C | YES | | IRIS B2 | NE | 284.78 |
| Hexanone 2- (methyl butyl ketone) | 591-78-6 | 5 ppm | 5 ppm | 5000 ppm | 3.5 | 0.81 | YES | acetone-like odor | | NE | 100.16 |
| Indeno(1,2,3-c,d)pyrene | 193-39-5 | 0.2 mg/m³ (b) | 0.2 mg/m³ (b) | NE | ¯0 | | YES | | IRIS B2 | NA | 276.34 |